TEMPERATURE SENSOR WITH CONTROLLED THERMAL OFFSET FOR DETERMINING STATIC TEMPERATURE

ABSTRACT OF THE DISCLOSURE

The present invention relates to providing a temperature sensor that is mountable on an aircraft and includes a thermometer or temperature sensing element for sensing temperature of airflow. A heater is provided on the probe to bias the temperature sensed by the thermometer or temperature sensing element, in a manner such that the temperature measured is at a substantially known offset from the static temperature surrounding the temperature sensor. Control of the offset can be achieved by regulating airflow or heat provided. The heating effect is controlled to be a substantially equal and opposite match to the decreased total temperature resulting from lower airspeed or decreased airflow. In this manner, the thermometer or temperature sensing element will essentially operate at a fixed offset above static temperature, that is the temperature in undisturbed air in which the aircraft is operating, over a fairly wide range of flow rates.